1⃣ What is a Database?

A **database** is a place to **store data** in an organized way so it can be easily accessed, managed, and updated.

Example:

- Student information in a college

- Employee records in a company

- Customer details in a bank

2⃣ What is RDBMS?

RDBMS stands for **Relational Database Management System**.

It is a **software system** that:

1. **Stores data in tables** (rows and columns)

2. **Maintains relationships** between data in different tables

3. Allows **easy retrieval, insertion, update, and deletion** of data

3⃣ Features of RDBMS

1. **Tables (Relations)** – Data is stored in tables with rows (records) and columns (fields).

2. **Primary Key** – Unique identifier for each record.

3. **Foreign Key** – Connects one table with another to maintain relationships.

4. **SQL Support** – You can use SQL (Structured Query Language) to work with data.

5. **Data Integrity** – Ensures data is accurate and consistent.

6. **Security** – Users can be given different permissions.

7. **Concurrency** – Multiple users can access data at the same time without conflicts

4⃣ Structure of RDBMS

Table (Example: Student Table)

StudentID	Name	Age	Course
101	Sunita	20	BCA
102	Monika	21	BCA
103	Rajesh	22	MCA

5️⃣ Examples of RDBMS

- MySQL

- Oracle Database

- Microsoft SQL Server

- PostgreSQL

- IBM DB2

6️⃣ Advantages of RDBMS

1. Easy to **store and retrieve data**

2. Maintains **relationships between tables**

3. **Secure** and **reliable**

4. Supports **large amounts of data**

5. **Data consistency** through constraints (like primary key, foreign key)

What is mysqli_connect()?

- It is a **PHP function** used to **connect your PHP script to a MySQL database**.

- You need to give it the **database details**: server, username, password, and database name.

- Returns a **connection object** if successful, or **false** if connection fails.

2️⃣ Syntax

```php
mysqli_connect(servername, username, password, databasename);
```

- **servername** → usually `"localhost"` if MySQL is on the same computer.
- **username** → MySQL username (default in XAMPP: `"root"`)
- **password** → MySQL password (default in XAMPP: empty `""`)
- **databasename** → the database you want to connect to

Example: Connect to Database

```php
php

<?php
$servername = "localhost";
$username = "root";
$password = "";
$database = "college";

// Create connection
$conn = mysqli_connect($servername, $username, $password, $database);

// Check connection
if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}

echo "Connected successfully!";
?>
```

4 Closing the Connection

```php
php

mysqli_close($conn);
```

- Frees memory and closes the connection.
- Good practice, but PHP will close automatically at the end of script.

DML OPERATION

Basic Steps to Select Data

1. **Connect to the database** using mysqli_connect()

2. **Write a SQL SELECT query**

3. **Run the query** using mysqli_query()

4. **Fetch the results** using mysqli_fetch_assoc()

5. **Use the data** (print or process)

```php
<?php
// Step 1: Connect to database
$conn = mysqli_connect("localhost", "root", "", "college");
if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}
```

```php
// Step 2: Write SQL query
$sql = "SELECT * FROM students";

// Step 3: Run the query
$result = mysqli_query($conn, $sql);

// Step 4: Check if data exists and fetch
if (mysqli_num_rows($result) > 0) {
    // Step 5: Loop through each row
    while($row = mysqli_fetch_assoc($result)) {
        echo "ID: " . $row["id"] . " | Name: " . $row["name"] . " | Age: " . $row
    }
```

```php
        }
    } else {
        echo "No records found.";
    }

    // Close connection
    mysqli_close($conn);
?>
```

Basic Steps to Insert Data

1. **Connect to the database** using mysqli_connect()

2. **Write a SQL INSERT query**

3. **Run the query** using mysqli_query()

4. **Check if the insertion was successful**

```php
<?php
// Step 1: Connect to database
$conn = mysqli_connect("localhost", "root", "", "college");

// Check connection
if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}

// Step 2: Write SQL INSERT query
$sql = "INSERT INTO students (name, age, course) VALUES ('Monika', 21, 'BCA')";
```

```php
if (mysqli_query($conn, $sql)) {
    echo "Record inserted successfully!";
} else {
    echo "Error inserting record: " . mysqli_error($conn);
}


// Step 4: Close connection
mysqli_close($conn);
?>
```